

**WHAT IS CLAIMED IS:**

## 1. A dental handpiece, comprising:

a housing of a size and configuration to be conveniently graspable by a user;

a dental tool clamping device carried by said housing;

a dental tool to be clamped in said clamping device, said dental tool being of a size and configuration enabling it to be received in the mouth of the patient and used for performing an operation therein involved in a dental treatment of the patient;

a rotary drive for rotating said clamping device, and the dental tool when clamped therein;

and a transmission system coupling said rotary drive to said dental tool to rotate same;

characterized in that said dental tool includes a driving tip for engaging the head of a fastening member to be fixed by rotation within the patient's mouth; and in that said transmission system includes a torque limiter for limiting the torque applied by said rotary drive to said driving tip.

2. The dental handpiece according to Claim 1, wherein said torque limiter is included within said housing between said rotary drive and said dental tool clamping device.

3. The dental handpiece according to Claim 1, wherein said dental tool further includes a mounting shaft at the opposite end with respect to said driving tip receivable within said clamping device and releasably clampable therein.

4. The dental handpiece according to Claim 3, wherein said torque limiter is included within said dental tool between said mounting shaft and said driving tip.

5. The dental handpiece according to Claim 1, wherein said torque limiter is presettable to limit the torque to be transmitted by said rotary drive to said dental tool clamping device.

6. The dental handpiece according to Claim 1, wherein said torque limiter is a bellevielle-spring type overload coupling.

7. The dental handpiece according to Claim 1, wherein said torque limiter is a coil-spring type overload coupling.

8. The dental handpiece according to Claim 1, wherein said torque limiter is a torsion-bar type overload coupling.

9. The dental handpiece according to Claim 1, wherein said rotary drive is an electrical motor drive.

10. The dental handpiece according to Claim 9, wherein said torque limiter interrupts the electrical circuit to said motor drive when the applied torque exceeds a predetermined value.

11. The dental handpiece according to Claim 1, wherein said rotary drive is a manual drive.

12. The dental handpiece according to Claim 1, wherein said dental handpiece further comprises a light source and an optical fiber having one end adjacent to said light source and an opposite end located to illuminate the region of the patient's mouth at which said operation is to be performed when the dental tool is received within the patient's mouth.

13. A tool for mounting to a housing including a rotary drive, comprising:

a driving tip at one end of the tool for engaging the head of a fastening member to be fastened by rotation;

a mounting shaft at the opposite end of the tool for mounting to a housing including a rotary drive;

and a torque limiter between said driving tip and said mounting shaft for limiting the torque to be applied by said rotary drive to said driving tip.

14. The tool according to Claim 13, wherein said driving tip is sized and configured for enabling it to be received in the mouth of a patient and used for engaging the head of a fastening member to be fixed by rotation in the patient's mouth.

15. The tool according to Claim 14, wherein said torque limiter is presettable to limit the torque to be transmitted by said rotary drive to said driving tip.

16. The tool according to Claim 14, wherein said torque limiter is a belleville-spring type overload coupling.

17. The tool according to Claim 14, wherein said torque limiter is a coil-spring type overload coupling.

18. The tool according to Claim 14, wherein said torque limiter is a torsion-bar type overload coupling which actuates an electrical switch when a maximum torque is exceeded.

19. A dental kit comprising:

a housing of a size and configuration to be conveniently grasped by a user;

a rotary drive within said housing;

a dental tool clamping device carried by said housing and coupled to said rotary drive;

and a plurality of different dental tools selectively mountable in said dental tool clamping device for use in various dental treatments of the patient;

at least one of said dental tools including a driving tip for engaging the head of a fastening member to be fixed by rotation within the patient's mouth; and a torque limiter for limiting the torque applied by said rotary drive to said driving tip.

20. The dental kit according to Claim 19, wherein said torque limiter is presettable to limit the torque to be transmitted by said rotary drive to said driving tip.